PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2025
(Sixth Semester)

Branch- ELECTRONICS

ARDUINO AND IoT

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer ALL questions
ALL questions carry EQUAL marks (5 x 1 = 5)

1. Which of the following is false about IoT devices?
   a) IoT devices use the internet for collecting and sharing data
   b) IoT devices need microcontrollers
   c) IoT devices use wireless technology
   d) IoT devices are completely safe

2. Which layer is used for wireless connection in IoT devices?
   a) Application layer b) Network layer
   c) Data link layer d) Transport layer

3. IoT gateway must provide _____.
   a) Protocol abstraction b) Data storage
   c) Security with hardware d) Simple and fast installation

4. How many analog pins are used in Arduino Mega board?
   a) 16 b) 14 c) 12 d) 8

5. Which function is used to set a GPIO pin as an _____
   a) GPIO.output(pin, GPIO.HIGH) b) GPIO.setmode(GPIO.OUT)
   c) GPIO.setup(pin, GPIO.OUT) d) GPIO.set(pin, GPIO.OUT

SECTION - B (15 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks (5 x 3 = 15)

6. a. Give the definition of IoT.
   OR
   b. Determine the basic operation in IoT.

7. a. Differentiate between the data and information in IoT.
   OR
   b. Examine the modified OSI model for M2M and IoT system.

8. a. Give an introduction to sensor technology.
   OR
   b. List out the sensor types.

9. a. What are the roles of interrupt?
   OR
   b. Define Arduino compiler.

Cont...

10. a. State the function of electronic switch.

OR

b. Illustrate the Arduino design methodology.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a. State and explain about M2M communication with example.

OR

b. Describe a use case example of M2M and IoT.

12 a. Explain the data consolidation and device management at gate way.

OR

b. Design the protocol layer of IoT and explain various protocol used in each layer.

13 a. Discuss about the RFID IoT systems.

OR

b. Explain the WSN protocol.

14 a. Discuss about the Arduino board interface.

OR

b. Draw the diagram of ADC and explain it.

15 a. Briefly explain the relay control using GPIO.

OR

b. Explain the temperature sensor interfaced with ADC.

Z-Z-Z END